

Amendments to the Claims

1. (Previously Presented) A protocol processor for processing
2 electronic communications, comprising:
a communication interface configured to receive an inbound communication from
4 a communication link and send an outbound communication to the communication link;
a data distribution interface configured to receive outbound data from a
6 communication entity and send inbound data to the communication entity; and
a first protocol processing element configured to extract said inbound data from
8 said inbound communication and generate said outbound communication from said
outbound data, wherein said protocol processing element comprises:
10 a register file for storing one of:
said inbound communication as said inbound data is extracted; and
12 said outbound data as said outbound communication is generated;
a parse unit for retrieving data from said inbound communication;
14 a lookup unit configured to use said retrieved data to identify a first
control block indicating how to extract said inbound data;
16 a control block cache configured to cache said first control block;
a timer unit configured to manage multiple timers associated with a
18 communication stream involving said communication entity; and
a modification unit configured to perform said extraction and said
20 generation.

2. (Original) The protocol processor of claim 1, wherein said register file
2 comprises one or more registers.

3. (Previously Presented) The protocol processor of claim 2, wherein a
2 first register in said register file is not smaller than said inbound communication and is
configured to store said inbound communication intact.

4. (Previously Presented) The protocol processor of claim 2, wherein a

2 first register in said register file is not smaller than said outbound data and is configured
to store said outbound data intact.

5. (Original) The protocol processor of claim 2, wherein a first register
2 in said register file stores a portion of said inbound communication for said extraction
and a second register in said register file stores said outbound data for said generation.

6. (Original) The protocol processor of claim 1, wherein said inbound
2 communication is a packet.

7. (Original) The protocol processor of claim 1, further comprising a
2 second protocol processing element.

8. (Cancelled)

9. (Cancelled)

10. (Original) The protocol processor of claim 1, further comprising a
2 data streaming unit configured to stream said inbound communication into said register
file.

11. (Original) The protocol processor of claim 10, wherein said data
2 streaming unit is further configured to stream said outbound communication out of said
register file.

12. (Previously Presented) A protocol processor for processing a packet
2 received from a communication link, comprising:

4 a first register configured to store a header of a first packet received from a
communication link;

6 a parse unit coupled to said first register and configured to parse said header to
extract data from one or more header fields;

8 a lookup unit coupled to said first register and configured to use said data to
identify a control block associated with the first packet, wherein said control block
indicates how the first packet may be processed;
10 a timer unit coupled to said first register and configured to manage a first set of
timers associated with a first communication stream comprising the first packet and a
12 second set of timers associated with a second communication stream, wherein said
second set of timers is distinct from said first set of timers; and
14 a modification unit coupled to said first register and configured to modify the first
packet.

13. (Cancelled)

14. (Original) The protocol processor of claim 12, further comprising a
2 control block cache coupled to said first register and configured to store said control
block for use when a subsequent packet in the same communication stream as the first
4 packet is received.

15. (Original) The protocol processor of claim 12, further comprising a
2 data streaming unit coupled to said first register and configured to load said header into
said first register.

16. (Original) The protocol processor of claim 15, wherein said data
2 streaming unit is also configured to load said control block into a control block cache.

17. (Original) The protocol processor of claim 12, wherein said parse unit
2 is further configured to parse a payload of the first packet.

18. (Original) The protocol processor of claim 17, wherein said payload is
2 parsed to extract information for identifying a destination entity to which said payload
may be forwarded.

19. (Original) The protocol processor of claim 12, wherein said
2 modifying said header comprises removing said header.

20. (Original) The protocol processor of claim 12, wherein said first
2 register is greater than 64 bytes in size.

21. (Previously Presented) The protocol processor of claim 12, wherein
2 said first register is not smaller than said first packet.

22. (Original) A protocol processor configured to prepare a set of data for
2 transmission over a communication link, comprising:

4 a first register configured to store a set of data as one or more protocol headers are
4 constructed for said set of data to facilitate transmission of said set of data over a
communication link;

6 a lookup unit coupled to said first register and configured to identify a control
block configured to indicate how to construct said protocol headers;

8 a modification unit coupled to said first register and configured to assemble said
protocol headers in said first register according to said control block; and

10 a timer unit coupled to said first register and configured to manage a set of timers
associated with said control block to ensure that said set of data is transmitted within a
12 predetermined period of time.

23. (Original) The protocol processor of claim 22, further comprising a
2 control block cache coupled to said first register and configured to store said control
block for use with a second set of data.

24. (Original) The protocol processor of claim 22, further comprising a
2 data streaming unit coupled to said first register and configured to stream said protocol
headers and said set of data from said first register toward the communication link.

25. (Original) The protocol processor of claim 22, further comprising a

2 data streaming unit coupled to said first register and configured to load said header into
said first register.

26. (Original) The protocol processor of claim 25, wherein said data
2 streaming unit is further configured to load said control block into a control block cache.

27. (Original) The protocol processor of claim 22, wherein said first
2 register is greater than 64 bytes in size.

28. (Previously Presented) The protocol processor of claim 22, wherein
2 said first register is not smaller than said first packet.

29. (Currently Amended) A method of operating a protocol processor
2 to extract ~~extracting~~ a payload from an electronic communication, comprising:
receiving as part of a communication stream an electronic communication
4 comprising a payload and one or more protocol headers;
storing a first portion of the communication in a register, wherein said first
6 portion comprises said protocol headers;
extracting communication details from said first portion of the communication;
8 retrieving a control block indicating how to process the communication, wherein:
said control block is identified with said communication details; and
10 said control block identifies a plurality of timers managed by a timer unit,
including a first timer for determining if the communication stream has been
12 quiescent for a threshold period of time;
forwarding said payload to a destination of the communication; and
14 updating said control block.

30. (Original) The method of claim 29, wherein said storing a first portion
2 comprises storing the electronic communication, in its entirety, in said register.

31. (Currently Amended) A method of operating a protocol processor

2 to packetize ~~packetizing~~ a set of data for transmission, the method comprising:
 upon expiration of a timer associated with a communication stream, receiving a
4 set of data from a source communication entity for transmission over a communication
 link, wherein said timer is one of multiple timers managed by a timer unit of the protocol
6 processor;
 storing the set of data in a register;
8 identifying a control block indicating how to process the set of data, wherein said
 control block is identified by said timer ~~using information provided by the source~~
10 ~~communication entity~~;
 adding one or more protocol headers to the set of data to form a communication
12 packet;
 streaming said communication packet from said register for transmission over the
14 communication link; and
 updating said control block.

32. (Original) The method of claim 31, wherein said storing the set of
2 data comprises storing the entire set of data in a single register.

33. (Previously Presented) The method of claim 31, wherein said
2 register is not smaller than said protocol headers.

34. (New) The method of claim 31, further comprising:
2 resetting said timer.